



STATISTICS
COLORADO STATE UNIVERSITY

Spring 2026 Departmental Seminar

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12:00 PM
Wagar Building Rm 232

Biostatistical methods for wearable devices with applications to NHANES and UK Biobank

Abstract

Wearable devices, such as accelerometers and heart monitors, are used in health research because they provide objective, continuous, unbiased, and detailed information about human activity either in the laboratory or the free-living environment. In this talk I will explore the different resolutions of the data, ways to summarize it, and inferential methods for exploring the associations with health outcomes. We will illustrate these methods using large, publicly available datasets, including the NHANES and UK Biobank. We will also show that objectively measured physical activity is the strongest predictor of mortality and cardiovascular mortality and the strongest modifiable risk factor of Multiple Sclerosis, Parkinson's Disease, and Alzheimer's Disease.